Chemical & Engineering NEWS

C_1 chemistry spurs cluster catalyst development by industry
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Hydrometallurgy

Refining metals with solutions rather than heat
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Cover: Salt storage bins (center) and first-stage leaching reactor (right) are part of plant at Sierrita, Ariz., the first to use Duval's CLEAR hydrometallurgical process for recovering copper from sulfide ore concentrate

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News of the Week

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- ***Producers of lead additives*** *for gasoline ask Federal Trade Commission to reverse ruling on unfair practices.* ***Page 7***
- ***Hazardous waste task force*** *set up by EPA to seek cooperation of private parties in cleanup of dump sites covered under the superfund law.* ***Page 7***
- ***California OSHA lists 794 chemicals*** *and classes of chemicals being considered for regulation.* ***Page 8***
- ***Chevron ending its fibers operations;*** *will shut down Maryland plant and plans to sell another in Tennesee.* ***Page 8***
- ***Nuclear primer*** *published by League of Women Voters discusses reactors, risk assessment, safety, and economics.* ***Page 8***

News Focus

- ***Research on cluster catalysts,*** *typically metal aggregates surrounded by stabilized ligands, has picked up in response to growing interest in C_1 chemistry.* ***Page 13***

Business

- ***Aramid fibers output continues to grow*** *at strong pace, unlike rest of fibers industry; 20% annual growth rate of Du Pont's Kevlar attracts challenge from Enka.* ***Page 23***

Government

- ***Chlorinated biphenyls dispute***—*whether MCBs are the same as PCBs and subject to the same regulation, as claimed by EPA, or whether they are different, as contended by Dow—still hasn't been resolved.* ***Page 26***
- ***OSHA appears to have changed its thinking*** *on importance of costs in complying with regulations and on best means of controlling worker exposure to substances.* ***Page 27***

Science

- ***Saturn and its system of rings and moons*** *are yielding to more analysis of data from Voyager 1 and 2; rings may have come from breakup of early moons.* ***Page 37***
- ***Nuclear power's link to spread of nuclear weapons*** *debated at American Physical Society meeting; experts disagree as to nature and even existence of tie.* ***Page 39***

Special Report

Hydrometallurgy, *recovering metals by use of aqueous solutions at relatively low temperature, increasingly is competing with dry high-temperature pyrometallurgical methods for processing ores.* ***Page 46***

Books

- ***"Reflections on Science and the Media,"*** *by June Goodfield, AAAS, focuses on journalists as the crucial link between scientists and the public.* ***Page 59***

MOST CHEMICAL FIRMS' EARNINGS DOWN

Many U.S. chemical companies will remember 1981's fourth quarter as a most unpleasant surprise.

At the beginning of the year, predictions had called for a rosy fourth quarter; the chemical industry and, indeed, the entire economy would have turned around from the 1980 recession and would be well into recovery. The construction industry and the automobile industry, big users of chemicals, both would have revived, interest rates would have fallen, and inflation would have abated. U.S. demand, if not worldwide demand, would have risen.

As the fourth quarter came and passed, it became painfully obvious that those predictions were far from the mark. And for the U.S. chemical industry, the miserable economy spelled plummeting earnings, sometimes deficits for the quarter. Now, almost midway into the new year's first quarter, the economy not only has not turned around but has fallen again into recession—this one possibly worse and more long-lived than in 1980. Autos and construction are still in a mess. Interest rates are still high, and a number of banks raised their prime rates again last week. Demand for chemicals remains very low, and chemical industry forecasters don't yet see a bottom to the slump. The only good sign is that inflation has finally eased.

For the 22 companies that have reported their fourth-quarter earnings thus far, 13 have posted declines in net income from continuing operations compared to the previous year's fourth quarter, and two—Akzona and Pennwalt—have had deficits. In addition, 11 of the companies reported sales declines from the 1980 period.

One of the worst earnings declines was at Dow Chemical, whose profits dropped 73% to $66.5 million. However, its sales increased 8% to $2.99 billion. As a result, the company's profit margin dropped to 2.2% in fourth-quarter 1981 from 8.7% in fourth-quarter 1980. One of the big problems for Dow was its large-volume plastics. Chairman Paul F. Oreffice says, "Our earnings in the fourth quarter suffered from the combined effect of reduced operating rates and lower prices. This was particularly true among our high-volume plastics such as polyethylene and polystyrene."

The largest sales decline posted so far, 17%, not surprisingly was at International Minerals & Chemical, where slumping demand for fertilizer products pulled revenues down. IMC's sales were about $409 million in the quarter. Its earnings of $28 million were 33% below those a year

Earnings drop in fourth quarter at most chemical companies

	Fourth-quarter 1981						Full-year 1981					
			Change from 1980		Profit margin[b]				Change from 1980		Profit margin[b]	
	Sales	Earnings[a]	Sales	Earnings	1981	1980	Sales	Earnings[a]	Sales	Earnings	1981	1980
Air Products[c]	$ 373.6	$ 34.6	2%	7%	9.3%	8.8%	$ 1,577.2	$ 128.3	7%	10%	8.1%	7.9%
Akzona	276.5	−2.2	−1	def	def	0.7	1,157.6	11.6	13	138	1.0	0.5
Allied Corp.[d]	1,696.0	92.0	17	−4	5.4	6.6	6,407.0	343.0	16	13	5.4	5.5
American Cyanamid	927.1	48.4	1	nc	5.2	5.3	3,649.1	197.1	6	24	5.4	4.6
Diamond Shamrock	872.5	59.7	3	9	6.8	6.4	3,376.2	230.2	7	8	6.8	6.8
Dow Chemical	2,985.0	66.5	8	−73	2.2	8.7	11,872.7	563.5	12	−30	4.7	7.6
Ethyl Corp.	430.3	23.9	nc	−3	5.6	5.7	1,757.2	90.9	1	1	5.2	5.2
First Mississippi	95.6	6.2	−3	−26	6.5	8.5	350.1	23.7	19	−7	6.8	8.7
Freeport-McMoRan	199.8	30.6	5	−21	15.3	20.2	835.4	159.0	19	−2	19.0	23.1
H. B. Fuller	82.4	3.2	5	8	3.9	3.8	328.7	13.6	11	53	4.1	3.0
W. R. Grace	1,759.3	81.7	3	20	4.6	4.0	6,520.8	361.3	6	26	5.5	4.7
Hercules[e]	649.0	27.4	3	−12	4.2	4.9	2,718.0	147.4	9	29	5.4	4.6
International Minerals[f]	409.1	28.0	−17	−33	6.8	8.4	1,940.8	144.7	nc	−17	7.5	9.0
Monsanto[g]	1,558.2	51.8	−6	31	3.3	2.4	6,947.6	377.5	6	47	5.4	3.9
Nalco Chemical	177.6	21.3	9	6	12.0	12.4	666.6	81.2	8	12	12.2	11.7
Olin[h]	445.2	13.8	−5	10	3.1	2.7	2,001.3	92.8	7	26	4.6	4.0
Pennwalt	250.5	−2.7	−5	def	def	4.1	1,056.1	36.7	1	−7	3.5	3.8
PPG Industries	803.8	39.1	−5	−42	4.9	8.0	3,400	211.2	6	1	6.2	6.5
Rohm & Haas[i]	412.5	13.9	−1	−18	3.4	4.1	1,884.7	96.8	9	3	5.1	5.4
Stauffer Chemical[j]	376.5	24.7	−12	−10	6.6	6.4	1,726.2	149.9	2	24	8.7	7.2
Union Carbide	2,430.0	139.8	−9	−6	6.0	5.6	10,170.0	649.0	2	−4	6.4	6.7
Witco Chemical	306.7	11.2	−2	1	3.7	3.3	1,291.9	38.6	10	6	3.0	3.5

a After-tax income from continuing operations, excluding nonrecurring and extraordinary items. b After-tax income as a percentage of sales. c Excludes $61.9 million nonrecurring gain in fourth-quarter 1981. d Excludes $33 million nonrecurring gain in fourth-quarter 1981 and $5 million gain for full-year 1981. e Excludes nonrecurring loss of $9.4 million in fourth-quarter 1981. f Excludes nonrecurring gain of $41.3 million in fourth-quarter 1981. g Excludes $67.7 million nonrecurring gain for 1981. h Excludes nonrecurring charge of $40 million for fourth-quarter 1980. i Excludes nonrecurring charge of $3.7 million in 1981. j Excludes nonrecurring gain of $14.9 million for fourth-quarter 1980. def = deficit. nc = no change.

before. IMC chairman Richard A. Lenon says that "The decline in operating earnings is concentrated in the fertilizer business, with poor markets in the U.S. and abroad. Farmers are being squeezed by inflation, cheap food prices, restraints on access to foreign exchange, and, in some areas, adverse weather. Problems on the farm hurt all agribusiness, including. . .fertilizers."

The fibers business, earlier improving, also took its lumps in the fourth quarter. Akzona showed a loss of $2.2 million compared to a profit of $2.0 million in the same period of 1980. Its sales dropped 1% to about $277 million. Claude Ramsey, Akzona's chairman and president, says that the company "showed a modest earnings recovery for the full year, but recession had a dampening effect on several business areas, particularly in the fourth quarter, when large numbers of customers in various industries shut down plants for one or more weeks to avoid excessive inventory accumulations."

Ramsey is more bullish on 1982, however. He says, "All the operating companies were profitable in 1981, and we expect 1982 to be a year of moderate growth as improving business conditions should lead to gains in most sectors."

Foreign business also hurt many companies. One was PPG Industries, whose earnings fell 42% in the fourth quarter to $39.1 million. Sales for the quarter totaled almost $804 million, a 5% drop from fourth-quarter 1980. PPG chairman L. Stanton Williams says that "Results were affected by weak economies in Canada and Europe—our chief foreign markets—as well as by the strength of the dollar, which reduced exports and resulted in lower foreign earnings after conversion to U.S. currency."

There were a few companies whose sales declined in the fourth quarter while their earnings increased. For example, Olin's sales dropped 5% to a little more than $445 million, but its earnings rose 10% to $13.8 million. Olin chairman John M. Henske says: "As order entry slowed during the fourth quarter for most products, our program of upgrading our plants paid off handsomely, since we were able to operate many of our units more efficiently at lower operating rates than we have been able to do historically. Also contributing to the increase in net profits in the quarter was lower interest expense, as Olin ended the year with substantially reduced short-term debt." □

Lead additives makers appeal marketing curbs

The four U.S. producers of lead additives for gasoline took their case to the Federal Trade Commission last week, hoping to get the commission to reverse an earlier ruling that the companies have engaged in unfair practices to keep the price of their products high.

An FTC administrative law judge found last summer that although the four companies—Du Pont, Ethyl Corp., PPG Industries, and Nalco Chemical—did not conspire to fix prices, the marketing practices they used reduced uncertainty about price changes and resulted in lessened competition. In the period from 1974 to 1979, when demand for the alkyl lead antiknock compounds fell by some 70%, the companies raised their prices for the compounds 24 times. These increases were always identical in amount and usually took effect on the same day.

To remedy what he considered the noncompetitiveness of this market, judge Ernest G. Barnes ordered the companies to alter their marketing practices in four ways. The companies no longer can announce price changes ahead of the date they become effective, announce price changes to anyone but customers until 30 days after the increases have taken effect, calculate their prices on a "uniform delivered basis" that does not take into account differences in cost of shipping products to different locations, or put clauses into contracts that guarantee customers that they are receiving the product at the lowest price.

The additives producers argue that the things they are forbidden to do are ordinary business practices and that FTC is exceeding its authority by forbidding otherwise legal practices without showing that they were used as part of an agreement among the companies to keep prices high.

The commission's review of the arguments is expected to take several months. Even then the matter may not be settled, for a Du Pont spokesman already says that should the decision go against the company, Du Pont will appeal to federal court. □

EPA sets up task force for dump-site cleanup

President Reagan's volunteerism program has invaded the realm of hazardous waste cleanup. Last week Environmental Protection Agency Administrator Anne M. Gorsuch announced that private parties responsible for the presence of hazardous wastes at sites covered under the superfund law would be given the chance to cooperate in the management of financing of the cleanup effort.

To prod this "private sector initiative," EPA has set up a special task force directed by the agency's enforcement counsel William A. Sullivan Jr. Sullivan says the task force "will notify parties of their potential liability for cleanup and pave the way for enforcement action to compel cleanup" if responsible parties fail to cooperate.

Contacted parties will be given 90 days to initiate voluntary action. If they do not cooperate, EPA will issue administrative orders requiring a cleanup, and then collect damages equal to three times the government's cost of cleanup.

The initial focus of this program will be the 115 sites EPA placed on a so-called "interim priority list" last October. The agency estimates that more than 1500 parties ultimately may be contacted by the task force. Parties include commercial waste haulers, firms that produced the wastes, and present or former owners and operators of the sites.

To date, 20 of the 115 sites are subjects of lawsuits. Of the remaining 95 sites, 122 individuals or firms associated with 16 sites have been notified that the site is marked for cleanup under the superfund program. And since May 1981, Gorsuch has approved more than $29 million to clean up 30 sites. □